

CLAIMS

We claim:

1. A method for creating a sloped via contact on a wafer having front and back sides, comprising:

providing a contact on the front side of the wafer;

forming a sloped via in the wafer under the front contact, the sloped via increasing in width;

coating the walls of the sloped via with conductive material; and

providing a contact on the back side of the wafer, electrically connected to the front contact through the sloped via.

2. The method of claim 1, wherein the sloped via is no wider than 80 um.

3. The method of claim 2, wherein the sloped via is no wider than 50 um.

4. The method of claim 2, wherein coating the walls leaves a coating of conductive material in the sloped via at least 1000 Angstroms thick where the via width is the narrowest.

5. The method of claim 4, wherein the conductive material is selected from the group consisting of NiChrome and gold.

6. The method of claim 4, wherein coating the walls includes plating.

7. The method of claim 2, wherein forming a sloped via includes:

forming a via; and

widening the via so that its width increases from front to back.

8. The method of claim 7, wherein forming a via includes using a deep reactive ion etching (DRIE) process.

9. The method of claim 8, wherein forming a via includes using a one-sided etch.

10. The method of claim 8, wherein forming a via includes using a two-sided etch.

11. The method of claim 7, wherein widening the via includes using an isotropic plasma etch.

12. A sloped via contact on a wafer having front and back sides, comprising:
a contact on the front side of the wafer;
a contact on the back side of the wafer;
a via through the wafer connecting the front contact to the back contact, wherein
the via walls have a metal coating, and
the via increases in width.

13. The sloped via contact as in claim 12, wherein the via is less than 80 microns at its widest.

14. The sloped via contact as in claim 13, wherein the via is less than 50 microns at its widest.

15. The sloped via contact as in claim 13 wherein the metal coating on the via is at least 1000 Angstroms thick where the via is the narrowest.

16. The sloped via contact as in claim 15, wherein the metal coating is selected from the group consisting of NiChrome and gold.

17. The sloped via contact as in claim 15, wherein the metal coating on the via is partially plated.

18. The sloped via contact as in claim 13, wherein the via is formed with a DRIE process.

✓ 19. The sloped via contact as in claim 13, wherein the via is formed using a one-sided etch.

20. The sloped via contact as in claim 13, wherein the via is formed using a two-sided etch.

✓ 21. The sloped via contact as in claim 13, wherein the slope of the via walls is not constant.

✓ 22. The sloped via contact as in claim 13, wherein the via walls are curved.